Extron® Electronics

INTERFACING, SWITCHING AND DISTRIBUTION

User's Manual

RGB 500 AKM
RGB 560 AKM

Architectural Series Universal Interfaces
with Audio and ADSP™

Precautions

Safety Instructions • English

⚠ **This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.**

⚡ **This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.**

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Consignes de Sécurité • Français

⚠ **Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).**

⚡ **Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.**

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Sicherheitsanleitungen • Deutsch

⚠ **Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.**

⚡ **Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.**

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst zu öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Instrucciones de seguridad • Español

⚠ **Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.**

⚡ **Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.**

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterias usadas siguiendo las instrucciones del fabricante.

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Introduction

About the Interfaces

Extron's RGB 500 AKM and RGB 560 AKM interfaces are universal, analog, computer-video interfaces with 300 MHz (-3dB) video bandwidth. The interfaces feature Extron's ADSP™ (Advanced Digital Sync Processing™) to ensure stable sync signal output, while allowing trouble-free centering control.

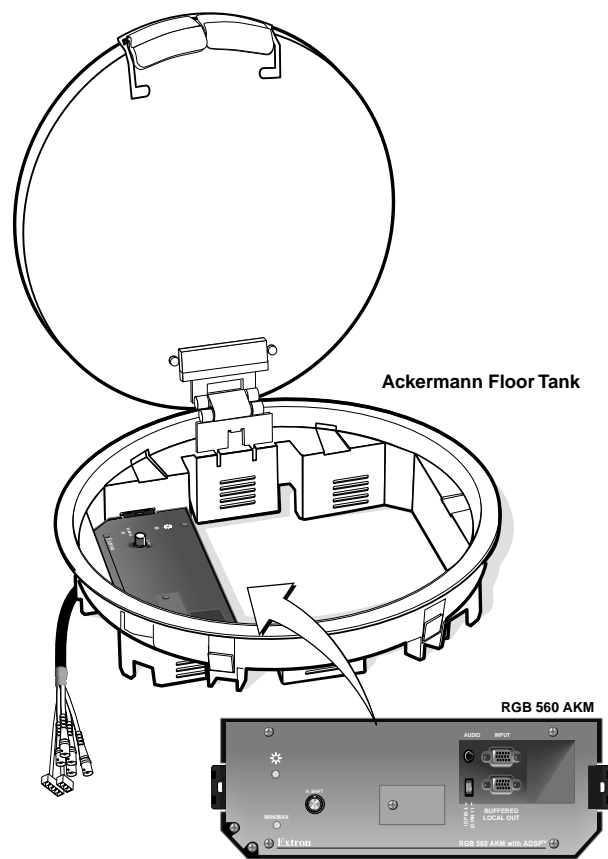Up to three interfaces can be installed in an Ackermann floor tank.

Ackermann Floor Tank

RGB 560 AKM

Figure 1 — Interface components

Features

RGB 500 AKM and RGB 560 AKM features

Both interfaces provide the following features:

Digital sync processing — Using regular sync processing to allow centering control (H-shift) can create problems with some digital display devices as a result of the sync delay. Extron's ADSP restores a stable sync signal, while allowing centering control. The RGB 500 AKM and RGB 560 AKM interfaces also provide another option, DDSP™ (Digital Display Sync Processing™), to ensure proper displays without altering sync pulse timing or width. It can be selected via a DIP switch.

Horizontal shift control — Adjust horizontal centering via a front panel knob.

RGBHV, RGBS, or RGsB outputs — Select the output format via DIP switches.

Serration pulse switch — This DIP switch-selectable feature adds or strips the serration pulses from the signal to make it compatible with digital display devices. Use the serration pulse switch if flagging or bending occurs at the top of the video display.

Gain/peaking adjustment — Output gain and peaking levels may be adjusted individually for red, green, and blue channels by using jumpers that are accessible inside the enclosure.

Sync polarity adjustment — Horizontal and vertical sync output can follow input sync polarity, or outgoing sync can be forced to negative, via a DIP switch.

Vertical sync pulse width adjustment — Vertical sync pulse width can be adjusted via a DIP switch.

Autopower — When a signal is present at the video/sync input, the interface will power on, and the LED on the front panel lights green. When power is applied but no signal is present, the LED lights amber.

Stereo audio — Both interfaces accept unbalanced stereo audio and output balanced or unbalanced stereo audio.

RGB 500 AKM feature

Video input termination selection switch — A front panel toggle switch provides a way to switch between high Z (when a local monitor is connected) and 75 ohm (when no local monitor is connected) video input termination on these models.

RGB 560 AKM features

Local monitor output connector — A 15-pin HD female local monitor connector on the front panel simplifies connections to a local display without the need for monitor breakout cables.

ID bit termination switch — These models feature front panel DIP switches to make ID bit termination easy. Use this feature if no local monitor is connected.

Local monitor switches — DIP switches 7 and 8 are used for routing local monitor signals for Macintosh 13" monitors and all other Mac/VGA-type monitors.

Chapter Two

Installation and Operation

Front Panel Features

Installation Overview

Installation and Operation Instructions

Installation and Operation
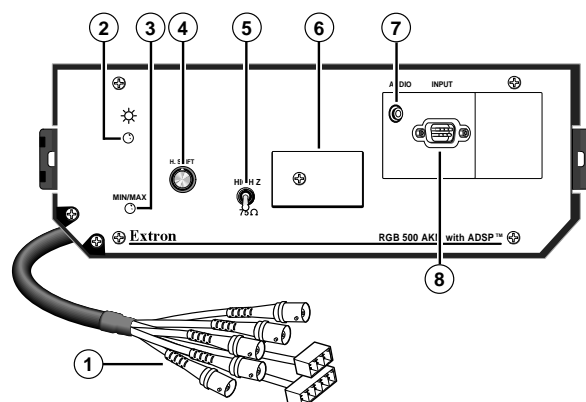
Front Panel Features
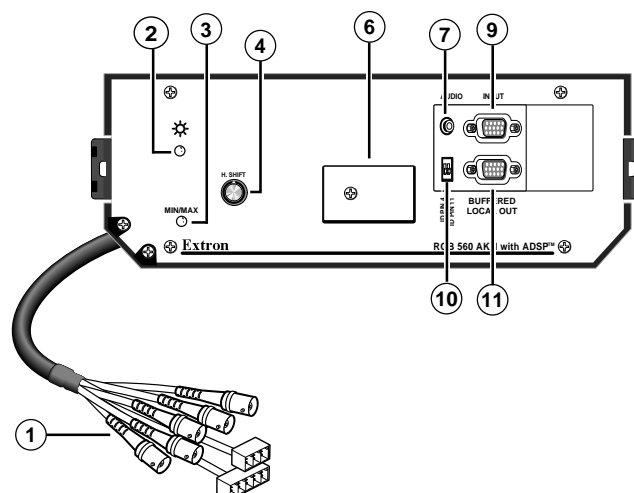

*Figure 2 — RGB 500 AKM front panel*

Figure 3 — RGB 560 AKM front panel

1. **Signal output and interface power cables** — Five BNC female connectors for video output: red, green, blue, horizontal sync (black), and vertical sync (yellow); one 5-pole 3.5mm captive screw connector for audio output (see "Audio output connector" on page 2-6); and one 3-pole 3.5mm captive screw connector for 12–24V AC or DC power (see "Power connector" on page 2-7).

2. **Power indicator LED** — The interface has a built-in autopower feature. When power is applied but no signal is present, the LED lights amber. When a signal is present at the video/sync input, the interface powers on, and the LED lights green.

3. **Min/Max LED** — This LED lights briefly when the horizontal shift knob is turned to its minimum or maximum adjustment limit.

4. **Horizontal shift knob** — Use this knob to adjust the horizontal position of the display image left or right to center it each time a new computer is attached to the interface.

   NOTE   *The horizontal shift control has no mechanical limits to rotation. When the minimum or maximum limit of the control is reached, the Min/Max LED lights briefly.*

   NOTE   *DDSP will disable horizontal shift control.*

⑤ **Video input termination toggle switch (RGB 500 AKM only)** — The toggle switch on the front panel allows you to select video input impedance. Set the toggle switch to the top position for high Z when a local monitor is connected, or set it to the bottom position for 75 ohm impedance when no local monitor is connected.

⑥ **DIP switch access cover and DIP switches** — Use a screwdriver to remove the cover to gain access to the DIP switches. These eight DIP switches, numbered 1 through 8 from left to right, control sync on green, sync processing, serration pulse, composite sync output , force negative sync options, vertical sync pulse width, and composite sync routing.
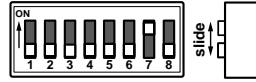
1 — SOG (sync on green)

ON — When this switch is set to On (sync on green), the interface outputs sync on green.

OFF — When the SOG feature is set to Off, the interface outputs either separate horizontal and vertical sync signals (on the H/HV and V connectors) or a composite sync signal (on the H/HV connector), depending on how DIP switch 4 is set. (Default setting.)

2 — DDSP (Digital Display Sync Processing)

ON — When this switch is set to On, the interface uses Digital Display Sync Processing instead of ADSP (Advanced Digital Sync Processing). Use this option if the image still isn't displayed properly after other options (changes to sync width, serration pulses, and video termination) have been explored.

NOTE *Turning on DDSP will disable horizontal shift control.*

OFF — When this switch is set to Off, the interface uses ADSP. (Default setting.)

3 — SERR (serration pulse)
Many display devices, including LCD and DLP projectors and plasma displays, must not have serration pulses in the vertical sync signal in order to display images properly. Flagging or bending at the top of the video image is a sign that the serration pulses should be removed.

ON — When this switch is set to On, serration pulses are output.

OFF — When this switch is set to Off, serration pulses are not output. (Default setting.)

4 — Composite sync output

ON — When this switch is set to On, a composite sync signal (H and V combined) is output on the black BNC connector.

OFF — When this switch is set to Off, horizontal sync is output on the H/HV (black) connector, and vertical sync is output on the V (yellow) connector. (Default setting.)

5 — Force negative H & V sync polarity

ON — When this switch is set to On, horizontal and vertical sync output are forced to negative.

OFF — When this switch is set to Off, horizontal and vertical sync follow the input sync polarity. (Default setting.)

6 — Vertical sync pulse width
For some digital display devices, if no picture appears, the picture cuts in and out, or the picture is scrambled, you may need to select the wide vertical sync pulse width.

ON — When this switch is set to On, narrow sync pulse width is selected.

OFF — When this switch is set to Off, wide sync pulse width is selected. (Default setting.)

7 & 8 — Composite sync routing
These are used for routing local monitor signals for Macintosh 13" monitors and all other Mac/VGA-type monitors.

7 = OFF *and*

8 = ON — For Macintosh 13" monitors, set DIP switch 7 to Off and 8 to On for proper sync routing for the 15-pin HD local monitor output. This is used with Macintosh cable adapter kits #70-078-01 and #70-078-02, which include audio connections.

7 = ON *and*

8 = OFF — For all other Macintosh and VGA-type computers, set DIP switch 7 to On and 8 to Off to pass the signal from input pin 9 through to pin 9 of the local monitor output. (Default setting.)

7 = ON *and* **8 = ON**   or

7 = OFF *and* **8 = OFF** — These settings are not valid combinations. They will not work with either computer type.

⑦ **Audio input connector** — Use this 3.5 mm stereo jack to connect an audio source to the interface.
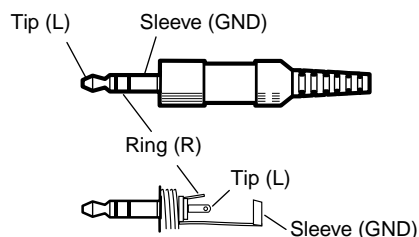
⑧ **Computer video input 9-pin D male connector (RGB 500 AKM only)**

⑨ **Computer video input 15-pin HD female connector (RGB 560 AKM only)**

⑩ **Front panel DIP switches (RGB 560 AKM only):**

ID PIN 4 (pin 4 local monitor ID bit termination)

ID PIN 11 (pin 11 local monitor ID bit termination)

Use these DIP switches to provide proper ID bit termination if a local monitor is not connected to the interface's buffered local monitor output.

ON — Set both switches (ID PIN 4 and ID PIN 11) to On if no local monitor is connected. Pins 4 and 11 are grounded for ID bit termination at the 15-pin HD local monitor output.

OFF — Set both switches to Off if a local monitor is attached to the interface. No monitor ID bit will be set. (Default setting.)

⑪ **Buffered local monitor output 15-pin HD female connector (RGB 560 AKM only)**

Installation Overview

To install the interface, follow these basic steps:

1. Set the DIP switches, located inside the access panel (see page 2-3), and the gain/peaking adjustment jumpers, located inside the enclosure. (See below.)

2. Set the front panel video termination toggle switch on the RGB 500 AKM, or set the front panel ID bit DIP switches on the RGB 560 AKM. (See page 2-4.)

3. Connect the signal output and power cables. (See "Attaching output cables" on page 2-6.)

4. Temporarily connect the computer video and audio input cables and (for the RGB 560 AKM) the local monitor output cable. (See "Connecting input cables" on page 2-7.)

5. Connect power cables to the input and output devices. Turn on the input and output devices.

6. The image should now appear on screen. If it does not appear, or if the picture is displayed incorrectly, double check and make adjustments to cables, DIP switches, and jumpers as needed. (See "Pre-installation testing/troubleshooting" on page 2-7.)

7. Temporarily disconnect the computer video cables and the audio input cables and (for RGB 560 AKM) the local monitor output cable from the front panel of the interface.

8. Install the interface in the Ackermann floor tank.

9. Reconnect the computer video and the audio input cables and (for RGB 560 AKM) the local monitor output cable to the interface, and readjust horizontal centering as needed via the front panel knob.

Installation and Operation Instructions

Adjusting the gain/peaking jumpers

Video signals passing through long cable runs (over 125 feet) can decrease in strength, creating signal loss. The longer the cable, the higher the video level and the greater the peaking that will be needed to compensate for the loss.

To change the gain/peaking jumpers, do the following:

WARNING *Disconnect power before making these adjustments.*

1. Remove the faceplate from the enclosure by removing the four screws shown in figure 4, and loosen the two screws shown. Do not pull the output cables out of the enclosure.
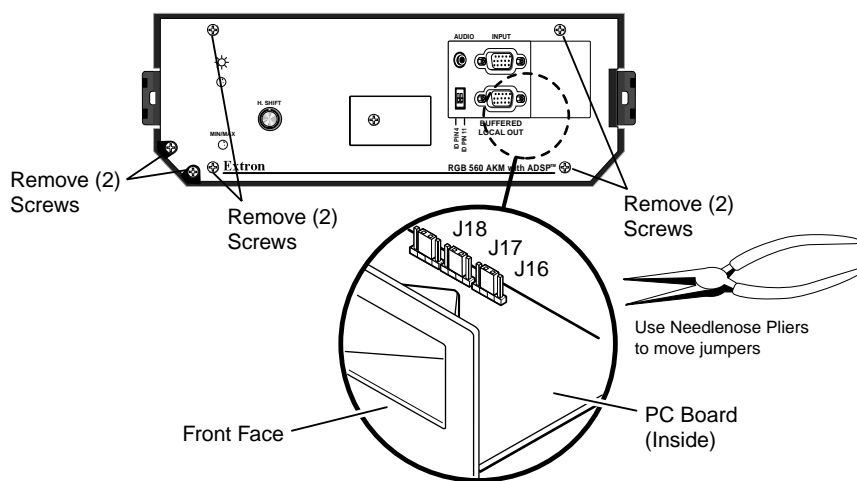
Installation and Operation, cont'd

Figure 4 — Setting the gain/peaking jumpers

2. Locate the gain/peaking jumpers on the wider of the two circuit boards attached to the back of the faceplate (figure 4). J16 controls blue gain/peaking, J17 controls red, and J18 controls green.

3. Using needlenose pliers to reach and move the jumpers, set the jumpers to the positions that yield the best image display.

    *   Use pins 3 and 4 to increase the output signal and add 50% of the maximum peaking to the signal.

    *   Use pins 2 and 3 for unity output (0.7 volts, no peaking; the default).

    *   Use pins 1 and 2 to increase the output signal and add 100% of the maximum peaking to the signal for very long cable runs.

4. Reattach the faceplate to the enclosure by reinstalling the screws you removed in step 1.

Attaching output cables

After the circuit board switches have been set, attach the cables that will be inaccessible after installation.

Audio output connector

The 3.5 mm, 5-pole captive screw (Phoenix) connector is used for balanced/unbalanced audio output. Attach the five wires for audio output of ground, left, and right channels to the connector; follow the wiring guide shown in figure 5. Insert the wires into the appropriate openings. Tighten the screws to fasten the wires.
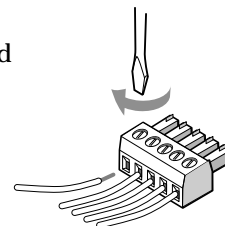
WARNING *Connect the sleeve to ground (GND). Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.*

Unbalanced Output

Balanced Output

Figure 5 — Wiring for audio output

Power connector

Attach the 3-pole, 3.5 mm captive screw power connector to a 12 to 24VDC or 12 to 24VAC, .5A (minimum), external power supply, such as Extron's #70-055-01.

NOTE *The center pole contains no conductor. Connect conductors to the outer two poles only.*

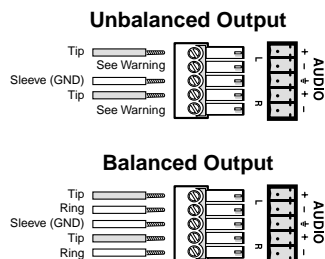**NOTE** *Polarity is not important: the positive or negative wire can be connected to either of the outer poles.*

Signal cables

Attach the BNC connectors to the video display device.

• For RGsB, attach the red, green/sync, and blue cables.

• For RGBS, attach the red, green, blue, and black (sync) cables.

• For RGBHV, attach the red, green, blue, black (horizontal sync), and yellow (vertical sync) cables.

Connecting input cables

Connect the input cables temporarily for testing. (Figure 6, on the next page, shows a typical application.) Then, disconnect them so any switch or jumper adjustments can be made. The interface can then be installed in the Ackermann floor tank. Input cables can be reconnected after the interface is installed.

NOTE *Use only Extron cables. Extron does not guarantee the performance of the interface if a low quality cable is used for the input.*

Connect the computer video and audio input cables and (for RGB 560 AKM) the local monitor output cable.

Pre-installation testing/troubleshooting

Before completing the installation, test the system to make sure that the connections and interface settings are correct.

1. Turn on the input device(s) (computer) and output device(s) (projector and/or monitor). The image should now appear on the screen.

2. If the image is not displayed at all, double-check cable connections, and ensure that all devices have power and are turned on. For the RGB 500 AKM interface, try changing the video termination toggle switch setting. For the RGB 560 AKM interface, if no local monitor is present, change the ID bit termination via the front panel DIP switches, then reboot the computer.

3.   If the image appears, but it looks scrambled or cuts in and out, check the DIP switch settings. If all switches are already set to what should be the correct settings for the connected input and output devices, try different settings.

If the display device is digital (including LCD, DLP, and plasma devices), try changing the vertical sync pulse width (see page 2-4).

Next, try changing the sync options (sync on green, composite sync output), sync polarity, or serration pulse options, or turn on DDSP (see page 2-3). You may need to use a combination of settings to achieve a proper display.

4.   If the image appears and is stable, but it appears faint or fuzzy, increase the output gain/peaking by changing the jumpers. If the image is too bright, decrease the gain/peaking level.

5.   If the image appears and is stable, but it has a greenish tint, it may be a result of using video input with sync on green. Incoming sync on green will not be stripped from the green signal by the interface.

6.   If the image appears and is stable, but it has ghosting or blooming, change the video input termination. If changing the termination doesn't solve the problem, try using a different input cable.

7.   For further assistance, call the Extron S[3] support hotline.

8.   After the image is displayed correctly on the screen, you can adjust the horizontal centering using the front panel knob; however, this adjustment must be made each time the interface is turned on.
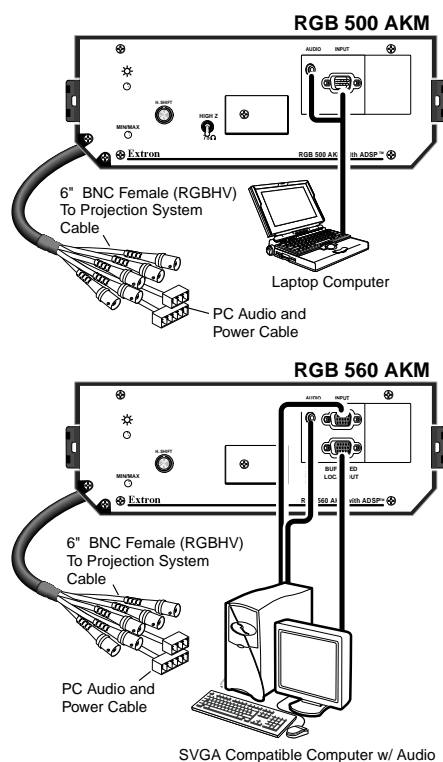

Figure 6 — Typical RGB 500 AKM and RGB 560 AKM applications

Appendix A

Specifications

Specifications

Video

Gain .... Unity (0.70V p-p), (0.725V p-p) 50% peaking, (0.75V p-p) 100% peaking
Bandwidth .... 300 MHz (-3dB)

Video input

Number/signal type .... 1 analog RGBHV, RGBS, RGsB, RsGsBs
Connectors

     RGB 500 AKM

                        1 9-pin D male, MBC/LBC cable or buffer

     RGB 560 AKM

                        1 15-pin HD female

Minimum/maximum levels .... Analog .... 0.3V to 1.5V p-p with no offset
Impedance .... 75 ohms or High Z, switchable (set to 75 ohms if no local monitor is connected)
Horizontal frequency .... Autoscan 15 kHz to 130 kHz
Vertical frequency .... Autoscan 30 Hz to 120 Hz
Return loss .... -30dB @ 5 MHz
Maximum DC offset 4.0V

Video output

Number/signal type .... 1 analog RGBHV, RGBS, RGsB
Connectors

     All models .... 5 BNC female
     RGB 560 AKM

                        1 15-pin HD female for buffered local monitor output

Minimum/maximum levels .... 0.70V to 0.75V p-p with no offset and 0.7V p-p input
Impedance .... 75 ohms
Return loss .... -30dB @ 5 MHz

Sync

Input type .... RGBHV TTL (±), RGBS TTL (-), RGsB 0.3V (-), RsGsBs 1.3V (-)
Output type .... RGBHV (±), RGBS(-), RGsB (-)
Input level .... 2V to 5.5V p-p with ±0.3VDC offset (max.)
Output level .... 4V to 5V p-p
Input impedance .... 10 kohms
Output impedance .... 75 ohms
Max. input voltage .... 5.7V p-p
Max. propagation delay .... 48 nS
Max. rise/fall time .... 3.5 nS
Polarity

     AKM models .... RGBHV .... Polarity follows input when RGBHV is input and the sync polarity switch is set to Off. Sync polarity is negative if the sync polarity switch is set to On.

                                 RGBS, RGsB .... Negative

Audio

Gain .... Unbalanced 0dB, balanced +6dB
Frequency response .... 20 Hz to 20 kHz, ±0.05dB
THD + Noise .... 0.03% @1 kHz, 0.3% @ 20 kHz at rated maximum output drive
S/N .... >90dB at rated maximum output (14dBm), balanced
Stereo channel separation .... >95dB @ 1 kHz to 20 kHz

Audio input

Number/signal type .... 1 PC level stereo, unbalanced

Connectors .... 1 3.5 mm stereo jack, 2 channel; tip (L), ring (R), sleeve (ground)

Impedance .... 10 kohms, DC coupled

Maximum level .... +8.5dBu, (unbalanced) at stated %THD+N

Audio output

Number/signal type .... 1 stereo (2 channel), balanced/unbalanced

Connectors .... 1 3.5 mm stereo captive screw connector, 5 pole, for left and right output

Impedance .... 50 ohms unbalanced, 100 ohms balanced

Gain error .... ±0.1dB channel to channel

Maximum level (600 ohm) .... > +14dBm, balanced at stated %THD+N

General

Power .... 12 to 24VAC or VDC, 0.35 A, 5 watts, external
(Order the power supply separately, part #70-055-01.)

Temperature/humidity .... Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing
Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non-condensing

Rack mount .... No

Furniture mount .... Yes, or wall mount, with included hardware

Enclosure type .... Metal

Enclosure dimensions — **RGB 500 AKM, RGB 560 AKM**

Interface .... 3.1" H x 8.1" W x 1.6" D
(7.8 cm H x 20.6 cm W x 4.1 cm D)
(Depth excludes connectors and knobs.)

Shipping weight .... RGB 500, RGB 560 .... 2 lbs (0.9 kg)
All other models ...... 3 lbs (1.4 kg)

Vibration .... ISTA/NSTA 1A in carton (International Safe Transit Association)

Approvals .... **AKM models** .... UL, CE

MTBF .... 30,000 hours

Warranty .... 2 years parts and labor

NOTE   *Specifications are subject to change without notice.*

(7.0-033001-D2)

Specifications, cont'd

Appendix B

Part Numbers

Interfaces

Cables

Other Accessories

Part Numbers

Interfaces

Extron Part	Part number
RGB 500 AKM	60-313-01
RGB 560 AKM	60-384-01

Cables

RGB 500 AKM

Laptop breakout cables*	Part number
LBC VGA HR 6'	26-244-01
LBC VGA HR 6' A	26-441-02
LBC Mac HR 6'	26-363-01
LBC Mac HR 6' A	26-442-02
LBC Sun HR 6' (61 kHz)	26-413-01
LBC Sun HR 6' A (61 kHz)	26-443-02
LBC Sun HR 6' (71 kHz)	26-413-02
LBC Sun HR 6' A (71 kHz)	26-444-02
LBC Sun HR 6' (81 kHz)	26-413-03
LBC Sun HR 6' A (81 kHz)	26-445-02

*Laptop breakout cables are also available in 3' and 12' lengths, with or without audio connections.

Monitor breakout cables	Part number
MBC VGA/XGA HR	26-162-01
MBC Mac Quadra	26-018-01
MBC Sun Sparc HR	26-424-01
MBC SGI/13W3 HR	26-425-01

RGB 560 AKM

Male-to-male VGA cables	Part number
VGA M6' MHR	26-238-01
VGA M3' MHRA (with audio)	26-490-01
VGA M6' MHRA (with audio)	26-490-02
VGA M12' MHRA (with audio)	26-490-03

Adapter laptop breakout cables	Part number
Mac 15-pin HD F adapter cable kit w/ audio	70-156-01
13W3 15-pin HD F adapter cable kit w/ audio	70-157-01

RGB 500 AKM and RGB 560 AKM

High-resolution cables	Part number
BNC-5-3'HR	26-260-15
BNC-5-6'HR	26-260-01
BNC-5-12'HR	26-260-02
BNC-5-25'HR	26-260-03
BNC-5-50'HR	26-260-04
BNC-5-75'HR	26-260-16
BNC-5-100'HR	26-260-05
BNC-5-3'HRP (plenum)	26-378-01
BNC-5-6'HRP (plenum)	26-378-02
BNC-5-12'HRP (plenum)	26-378-03
BNC-5-25'HRP (plenum)	26-378-04
BNC-5-50'HRP (plenum)	26-378-05
BNC-5-75'HRP (plenum)	26-378-06
BNC-5-100'HRP (plenum)	26-378-07
Bulk installation cable (14-conductor, non-plenum), 500' HR	22-120-02
Bulk installation cable (17-conductor, plenum), 500' HR	22-111-03

Other Accessories

Category	Product name	Part number
Connectors	3-pole, 3.5mm captive screw connector	10-265-03
	5-pole, 3.5mm captive screw connector	10-319-10
	3.5mm stereo plug	10-306-01
Power supply	12 to 24 VAC or VDC, 0.5 A, 5 watts external	70-055-01
Literature	RGB 500 AKM and RGB 560 AKM User's Manual	68-468-02

Part Numbers, cont'd

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of two years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805
United States of America

Europe, Africa, and the Middle East:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Asia:

Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Building
Singapore 368363

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), or 65.383.4400 (Asia) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

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